FODS

FODS IN THE FIELD

CASE STUDY

CHALLENGER SERVICE INC. IMPROVES CONSTRUCTION ENTRANCE COMPLIANCE ON HARRIS COUNTY GREENS BAYOU

Major excavation throughout the project resulted in up to 800 trucks per day accessing the site to remove soil. To maintain compliance Challenger Service Inc. used FODS effective Reusable Trackout Control System to keep sediment and debris from leaving the job site.

BACKGROUND

In late August of 2017, Category 4 hurricane Harvey struck the Houston metropolitan area. Counties along the Texas coastline experienced upwards of 40 inches of rain causing unprecedented flooding and thirty-three counties to declare a federal disaster. Out of nineteen official river gauges in Harris County, nine recorded all-time high flood stages. In the aftermath of hurricane, voters of Harris County approved a $2.5 Billion Bond for Flood Risk Reduction Heavy Civil Construction Projects.

As of 2019, there are over fifty projects underway which involve heavy excavation to modify and enlarge channels, bayous, banks, and storm water detention basins. The modifications will safely contain and discharge surplus storm water to protect developments and residents in Harris County.

The Harris County Flood Control District (HCFCD) awarded Challenger Service Inc., a full-service excavation and heavy equipment company based in Texas, a $16 million contract to excavate and construct the Lauder Stormwater Detention Basin in the Greens Bayou watershed. This area in North Harris County encompasses densely populated and highly developed sites that have been subject to multiple floods since the late 1970s. When completed, the wet-bottom basin will hold at least 1,200 acre-ft or more than 391 million gallons of surplus storm water which will drain to the bayou.

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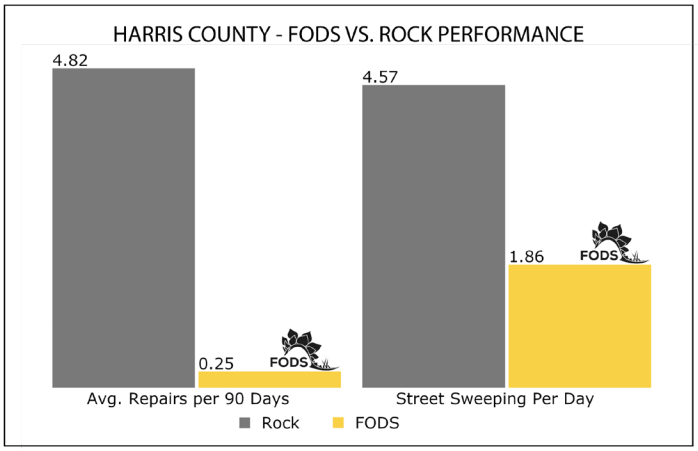
CHALLENGE

Excavation projects in particular require effective trackout control solutions to prevent mud and sediment from vehicle tires from being deposited onto public roadways. Traditional rock construction entrances can quickly degrade during high traffic volume and in wet weather conditions resulting in the need for frequent street sweeping. During this project, FODS Distributor, Construction EcoServices, an important source of environmental and storm water protection solutions, provided Challenger Services Inc. with 16 FODS (Foreign Object Debris System) Trackout Control Mats.

HARRIS COUNTY PRODUCT APPROVAL TESTING

As part of a best management practice (BMP) product approval test, inspectors from HCFCD recorded the performance and benefits of using FODS compared to traditional rock stabilized construction access (SCA). Repairs, street sweeping frequency and traffic volume was recorded throughout the project. During the first 56 days of excavation, a traditional TxDOT Construction rock stabilized construction entrance was used. FODS composite mat system replaced the traditional TxDOT Construction rock stabilized construction entrance for the remaining 122 days of the project. Excavation lasted a total of 178 days with a total of 29,745 fully loaded trucks leaving the site.



"With our experience with the system we observed that it cut the amount of street sweeping we had to perform by half on rainy and dry days. All in all, Challenger had a very positive experience using the FODS and would definitely recommend them to other contractors." – Zach Parker, Challenger Texas

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TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM
FOREIGN OBJECT DEBRIS SYSTEM

HARRIS COUNTY FLOOD CONTROL DISTRICT

DATE: 7/18/2019

RE: FODS Demonstration Project
Construction Access Approved Alternatives

9900 Northwest Freeway
Houston, TX 77092
713-684-4000

Introduction

HCFCD Foreign Object Debris System (FODS) demonstration project was performed at the the intermediate excavation site for Lauder Detention Basin (HCFCD Unit No. P500-06-00). The project team analyzed the performance and benefits of FODS to determine if FODS could be utilized as an Approved Alternative for HCFCD construction access criteria.

FODS is a construction entrance mat designed to remove mud and sediment from vehicle tires before being deposited onto public roadways (Figure 1). The mats are designed to be durable and reusable with easy installation, cleaning, and transport.

Figure 1. FODS construction Mat

HCFCD Construction Division developed criteria to measure the performance of FODS. Data was collected regarding durability, maintenance, and permit compliance in order to determine if FODS meet or exceed the performance of traditional, 3x5 rock Stabilized Construction Access (SCA) HCFCD Specification 02365 (Appendix A). Maintaining clean local roadways is an element of required good housekeeping for compliance with Construction General Permit (CGP).

Additional support was provided by Construction EcoServices, who provided the sixteen modules to create the FODS entrance. An HCFCD Construction Inspector collected data, and the construction contractor, Challenger Texas, installed the FODS and conducted maintenance.

HARRIS COUNTY - FODS VS. ROCK PERFORMANCE

TOTALS

	Total Trucks	Average Trucks per Day	Total Days	Repairs/ Refresh Required
Rocks	9,391	168	58	9
FODS	20,354	167	122	1*

*Repair = Reanchoring of FODS TCS

THE FODS DIFFERENCE

	Repair Reduction	Street Sweeping Reduction
FODS	94.8%	59%

"Use of FODS improved compliance with the Construction General Permit and reduced liability by preventing dirt tracked onto Lauder Rd." - HCFCD

HCFCD RESULTS AND RECOMMENDATIONS

HCFCD analyzed the data and determined that "*FODS provided equal or greater performance than SCA. Use of FODS decreased roadway cleaning by 59% when compared to SCA. FODS cleaning effort was less time consuming and resulted in cleaner roadway. FODS required 89% less repair than SCA. The decreased amount of FODS repairs resulted in less time lost to the contractor and more time excavating. This particular instance would have reached 100% decrease as the single repair needed resulted from faulty installation of a tie down.*"

Harris County Flood Control District has officially added FODS as an approved best management practice and stated, "it is recommended that a special specification be created for FODS as an alternative to SCA."

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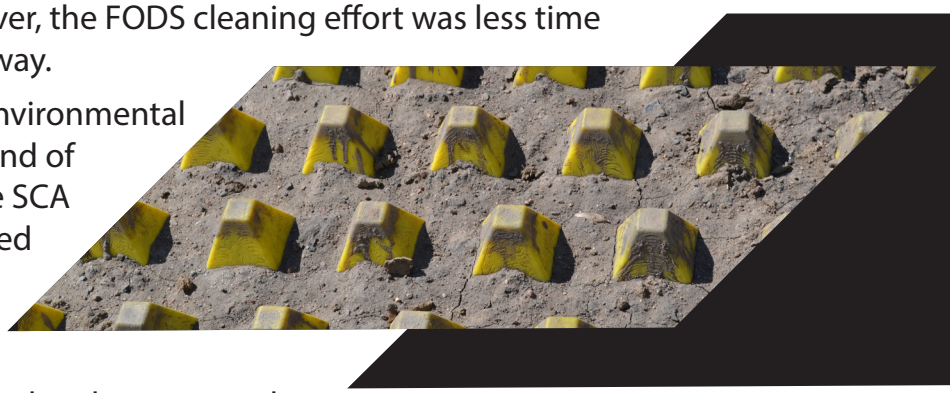
This test provided the valuable data that highlights the key differences between rock systems and FODS. Use of FODS improved compliance with the Construction General Permit and reduced liability by preventing dirt tracked onto Lauder Rd. HCFCD determined that using FODS Reusable Construction Entrances provided equal or greater performance than traditional SCA. FODS required more frequent cleaning than SCA, however, the FODS cleaning effort was less time consuming and resulted in cleaner roadway.



Engineered for extreme durability and environmental sustainability, FODS are recycled at the end of their estimated lifespan of 10 years while SCA are removed and discarded. The decreased amount of FODS repairs resulted in less time lost to the contractor and more time excavating. FODS Reusable Trackout Control Mats were simply cleaned and transported to the next excavation site. These principal differences allow excavation contractors to produce less waste, save time and operate at a lower cost which is a clear advantage for contractors, taxpayers and the environment.

The scale of work that has begun with flood resilient projects demonstrates the opportunity for novel and innovative solutions to improve the ability for excavation contractors to better serve the needs of their communities. As Harris County continues to implement the remainder of the flood risk reduction efforts spanning the next 10-15 years, FODS will provide value to contractors by offering effective, sustainable and reusable trackout control options at a lower cost per job. FODS welcomes the opportunity to play a role in the rebuilding of American cities across the country.

"I think that on another large detention pond project with thousands of truck loads of dirt leaving a site that these (FODS) would definitely work better then 3x5 rock and would pay for themselves in the end with the ability to be re-used."– Zach Parker, Challenger Texas